Pacific Region – Dental Network Teleconsultation (PR-DENT)

Background

In the Pacific areas there are over 350 military dental officers at 61 facilities responsible for the dental care of over 190,000 patients. Seventy percent of these dental treatment facilities have no dental specialists assigned. Only five percent of the dental facilities have all dental specialists assigned; the remaining 25 percent have limited and variable specialists assigned. There is currently no method available to military dental officers in the pacific area to allow long-distance dental consultations without physically sending the patient for the consultation. There is a great unmet need for this capability due to the dental facilities in the pacific region which do not have dental specialists assigned.

The dentists and patients would benefit from easy and quick access to advice and patients would not need to physically travel to the specialist for evaluation.

Organization

Principle Investigator - LCDR Michael Wolfgang, USN
Primary Investigator - LtCol David Stanczyk, USAF
Co-Investigator – Capt. Matt Bruner, USA
Project Manager - Steve Middaugh, M.S., Pacific e-Health Innovation Center

Research Question - Establish a mechanism for military dental officers in the pacific region to request remote dental consultations without physically sending the patient for the consultation.

Goals and Objectives

Goals

1. Phase I: Perform a comparative analysis of the image quality and functionality between digital cameras, dental scopes and film cameras for dental teleconsultations.
2. Phase II: Demonstrate the outcome efficacy using a dental telehealth application to provide remote teleconsultations match the outcome of dental consultations provided with the conventional face-to-face method.

Objectives

1. Phase I: Develop a standardized set of dental consultation formats
2. Phase I: Using the currently available hardware, evaluate the acceptability of digitally acquired dental images by comparing the images to the identified diagnostic standards.
3. Phase II: Establish current low-bandwidth technology and equipment can produce images that are of adequate diagnostic quality.
4. Phase II: Establish that a dental specialist can utilize digital images (store and forward methodology) to conduct an initial diagnosis and allow an opinion and/or recommendation to be made.
5. Phase II: Establish that dental consultations can be performed remotely.
6. Phase II: Confirm a reduction in lost man-hours and MedEvac costs by conducting remote dental teleconsultations.

Current Status

a) Primary Accomplishments

1. Began preliminary discussions with primary investigator on the execution of this project.
2. Informed the primary investigator on the project execution process.
3. The Project Manager has been researching operational, hardware and software requirements and collecting required data.
4. Initiated procurement of evaluation hardware and software
5. Finalized initial equipment requirements list

b) Project Timelines

1. Begin evaluation of imaging hardware (Mar 00)
2. Establish initial electronic consult formats (April 2000)
3. Procure initial hardware (Apr 00)
4. Begin Image evaluation study (Apr 00)
5. Procure web based imaging software (Aug 00)
6. Convert consult forms to web format (Aug 00)
7. Begin dental teleconsultations (Aug.00)

Strategic Direction

Accomplishment of Objectives-

The project proposes to research dental teleconsultation in the pacific region and is divided into two distinct phases.

Phase I – A set of standard dental consultation formats for each dental specialty will be developed. These standardized consultation formats will help ensure that appropriate and adequate information will be available to the consultant. These consultations will then be converted to a web-based format.

Phase II – Establish acceptable imaging hardware standards by determining the minimum imaging capability while providing an acceptable diagnostic image. Images from various brands and styles of digital cameras will be compared on both desktop and laptop computer monitor screens to a standard photographic image of acceptable diagnostic quality. Equipment cost, size and deployability will be considered when selecting the equipment to study. As bandwidth is limited in the Pacific, the stored size of the resulting digital image will also be considered.

The Air Force, Army, Navy, Marine and Coast Guard dental commanders in the Pacific Region are ready to incorporate teleconsultation as an adjunct to their existing dental treatment facilities. The results of this study will facilitate implementation of such a system. Additionally, the investigators anticipate publishing their results in a recognized dental and/or telemedicine journal.

Military Significance-

Dental consultations accomplished through telemedicine applications will reduce time and costs of medical care and lost work hours for active duty members. Remote dental consultations through the use of digital images, Internet and email will allow active duty members to remain at their remote duty stations rather than having to come to Tripler for face-to-face dental consultations. This type of teleconsultation for remote participants will maintain readiness without compromise of the treatment provided.

Impact on customers-

Our customers are remote patients and providers of health care. Success means improved patient care, better patient outcomes, and reduced costs.

Business Associations

Corporate Partnerships – N/A

Government Partnerships - Telemedicine and Advanced Technology Research Center (TATRC)
Wilford Hall USAF Medical Center
Tripler Army Medical Center IMD - network assistance
U.S. Navy – Pearl Harbor Dental Clinic

Project Security

System security: N/A at this time

Summary

This project will establish a method for military dental officers in the pacific region to request remote dental consultations without physically sending the patient for the consultation. There is a great unmet need for this capability due to the dental facilities in the pacific region which do not have dental specialists assigned. This project will develop standard dental consultation formats for each specialty resulting in a standard web-based consultation formats for the various types of dental consultations. In addition, imaging and display hardware will be evaluated to determine digital-imaging standards required for an acceptable diagnostic quality image.